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In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-120. (Canceled, without prejudice or disclaimer)

121. (Currently Amended) A method of forming a sheet of material for bending along a bend line comprising the step of:

forming a plurality of bending strap-defining structures in the sheet of material which are positioned relative to the bend line to define at least one bending strap in the sheet of material having a longitudinal strap axis oriented to obliquely extend across the bend line, the strap-defining structures being configured and positioned with edge-to-face engagement of the material to produce bending of the sheet of material along the bend line.

122. (Original) The method as defined in claim 121 wherein,

the forming step is accomplished by forming the strap-defining structures as slits extending through the sheet of material.

123. (Original) The method as defined in claim 122 wherein,

the forming step is accomplished by forming the slits to have a kerf dimension and jog distance causing edge-to-face engagement of the sheet of material on opposite sides of the slits during bending of the sheet of material.

124. (Original) The method as defined in claim 121 wherein,

the forming step is accomplished by forming the slits as elongated arcuate slits.

125. (Original) The method as defined in claim 124 wherein,

the forming step is accomplished by forming the arcuate slits to have convex sides facing the bend line.

126. (Original) The method as defined in claim 121 wherein,

the forming step is accomplished by forming the strap-defining structures as grooves formed to a depth not extending through the sheet of material.

127. (Original) The method as defined in claim 126 wherein,

the forming step is accomplished by forming the grooves as elongated arcuate grooves.

128. (Original) The method as defined in claim 127 wherein,

the forming step is accomplished by forming the arcuate grooves to have convex sides facing the bend line.

129. (Original) The method as defined in claim 126 wherein,

the forming step is accomplished by forming the grooves in the same side of the sheet of material.

130. (Original) The method as defined in claim 121 wherein,

the forming step is accomplished by forming the strap-defining structures to define straps having a width dimension which increases in both directions along a longitudinal strap axis from about a midpoint of the length of the strap.

131. (Original) The method as defined in claim 121 wherein,

the forming step is accomplished by forming the strap-defining structures as arcuate slits defining tongues on a concave side of the arcuate slits displaced out of the plane of the sheet of material before bending.

132. (Original) The method as defined in claim 122 wherein,

during the forming step, forming the slits as arcuate slits alternating on opposite sides of the bend line with convex sides of the arcuate slits facing the bend line.

133. (Original) A method as defined in claim 121 wherein,

during the forming step, each slit is formed with slit end portions diverging away from the bend line, with a pair of longitudinally adjacent slit end portions on opposite sides of the bend line defining the bending strap extending across the bend line, and during the forming step, forming the slits with a kerf width dimensioned producing interengagement of the sheet of material on opposite sides of the slits during bending.

134. (Currently amended) A method of slitting a sheet of material for bending along a bend line comprising the steps of:

selecting a solid sheet of material for slitting; and

forming a plurality of slits along a desired bend line with alternate slits along the bend line being positioned on alternating sides of the bend line and during the forming step, forming each slit with a central portion substantially parallel to and offset laterally from the bend line and with arcuate slit end portions on each end of the slit curving away from the bend line so that adjacent pairs of arcuate slits define bending straps extending obliquely across the bend line with increasing strap width dimensions on both sides of a minimum width dimension, said minimum width extending obliquely across the bend line.

135. (Original) The method as defined in claim 134 wherein,

the forming step is accomplished using a laser cutting apparatus to cut slits having a kerf width dimensioned to produce interengagement of the sheet of material on opposite sides of the slits during bending.

136. (Original) The method in claim 134 wherein,

the forming step is accomplished using a water jet cutting apparatus to cut slits having a kerf width dimensioned to produce interengagement of the sheet of material on opposite sides of the slits during bending.

137. (Original) The method as defined in claim 134, and the step of:

after the forming step, bending the sheet of material along the bend line.

138. (Original) The method as defined in claim 137 wherein,

the forming step is accomplished by forming the slits with a kerf width dimension and a transverse jog distance between slits producing sliding interengagement of an edge of the sheet of material on one side of the slit with a face of the sheet of material on the other side of the sheet of material; and

the bending step is accomplished by bending the sheet of material about a virtual fulcrum substantially aligned with the bend line so that sliding interengagement of edges and faces of the sheet of material produces plastic and elastic deformation of the bending straps.

139. (Original) The method as defined in claim 138 wherein,

the forming step is accomplished by forming the slits along a plurality of intersecting bend lines; and

the bending step is accomplished by bending the sheet of material into a three-dimensional structure having three intersecting planar areas extending into abutting relation; and the step of

securing the three intersecting planar areas together to form a stable structure.

140. (Original) The method as defined in claim 138, and the step of:

after the bending step, filling the slits with a material producing a sealed joint at the bend line.

141. (Original) The method of claim 140 wherein,

the filling step is accomplished by one of:

(a) welding;

(b) brazing;

(c) soldering;

(d) potting; and

(e) adhesive filling.

142. (Original) The method of claim 138, and the step of:

after the bending step, unbending the sheet of material.

143. (Original) The method of claim 134 wherein,

the forming step is accomplished by providing slits defining bending straps oriented relative to the bend line to oppositely extending oblique angles.

144. (Currently amended) The method of claim 143 wherein,

the forming step is accomplished by providing bending straps having [[~~longituding~~]] longitudinal strap axes oriented relative to the bend line at angles of about 45° and about 135° at opposite ends of a slit.

145. (Original) A method as defined in claim 134 wherein,

the forming step is accomplished by selecting a width dimension for the bending straps producing a desired amount of force required to bend the sheet of material.

146. (Original) A method as set forth in claim 134 wherein,

the forming step is accomplished by selecting a minimum width dimension for the bending straps which is greater than the thickness of the sheet of material being bent.

147. (Original) A method as set forth in claim 134 wherein,

the forming step is accomplished by selecting a minimum width dimension for the bending straps which is less than the thickness of the sheet of material being bent.

148. (Original) A method as set forth in claim 134 wherein,

the forming step is accomplished by selecting a minimum width dimension for the bending straps which is in the range of about 0.5 to about 4 times the thickness of the sheet of material being bent.

149. (Original) A method as set forth in claim 148 wherein,

the selecting step is accomplished by selecting a minimum width of the bending straps to be between 0.7 to 2.5 times the thickness of the material being bent.

150. (Original) A method as set forth in claim 134 wherein,

the forming step is accomplished by configuring the bending straps to be oriented obliquely to the bending line in oppositely skewed directions.

151. (Original) A method as set forth in claim 150 wherein,

the forming step is accomplished by configuring the bending straps to diverge from proximate a midpoint of the lengths of the bending straps.

152. (Original) The method as defined in claim 134 wherein,

the steps of selecting the sheet of material and forming a plurality of slits are accomplished to produce only elastic deformation of the sheet of material during bending.

153. (Original) The method as defined in claim 134 wherein,

the forming step is accomplished in a manner producing sliding edge-to-face engagement of the sheet of material on opposite sides of the slits, the sliding engagement progressing from a longitudinal center of the slits to the slit ends as the bending straps are twisted and bent.

154. (Original) The method as defined in claim 134 wherein,

during the forming step, the minimum width of the bending straps, the distance of each slit from the bend line, and the width of each slit are selected to produce a desired strength of the

bend for the composition and thickness of said sheet of material and the forces to which the bend is to be subjected during use.

155. (Original) The method of claim 134 wherein,

during the forming step, the distance of each slit to the bend line is less than the thickness of the sheet of material.

156. (Original) The method of claim 134 wherein, during the step of forming the slits, the slits are formed to have a geometry which tends to reduce residual stress in the sheet material at the point where the slits are terminated.

157. (Original) The method as defined in claim 137 wherein,

the forming step is accomplished by forming the slits along a plurality of bend lines arranged to produce a cross-braced box beam upon bending; and

during the bending step, bending the sheet of material into a cross-braced box beam.

158. (Original) The method as defined in claim 137 wherein,

the forming step is accomplished by forming the slits along a plurality of bend lines arranged to produce a continuous corrugated deck upon bending; and

during the bending step, bending the sheet of material into a continuous corrugated deck.

159. (Original) The method as defined in claim 137 wherein,

the forming step is accomplished by forming the slits along a plurality of bend lines arranged to produce a component support chassis upon bending; and

during the bending step, bending the sheet of material into a component support chassis.

160. (Original) The method as defined in claim 137 wherein,

the forming step is accomplished by forming the slits along a plurality of bend lines arranged to produce a stud wall upon bending; and

during the bending step, bending the sheet of material into a stud wall.

161. (Original) The method as defined in claim 137 wherein,

the forming step is accomplished by forming the slits along a plurality of bend lines arranged to produce a ladder upon bending; and

during the bending step, bending the sheet of material into a ladder.

162-168. (Canceled, without prejudice or disclaimer)

169. (Currently amended) A method of folding a sheet of isotropic material along a linear fold line comprising the steps of:

forming a plurality of arcs on the sheet of material, each of the arcs defining a plurality of connected zones between ends of the arcs, the arcs being symmetrically and longitudinally spaced on opposite sides of the fold line, the connected zones forming straps extending obliquely across the fold line; and

folding the sheet of material along the fold line.

170. (Original) The method as defined in claim 169 wherein,

the forming step is accomplished by forming the arcs to define straps aligned in opposite directions along the fold line so that the planes of the sheet of material on opposite sides of the fold line do not shift when the sheet of material is folded along the fold line.

171. (Original) The method as defined in claim 169 wherein,

during the forming step, forming the arcs to produce connected zones extending obliquely across the fold line in the same direction; and

during the bending step, allowing the sheet of material on opposite sides of the fold line to shift longitudinally along the fold line.

172. (Original) A sheet of material formed for bending along a bend line comprising:

a sheet of material having at least two bending straps formed to extend across the bend line, the straps having a minimum width dimension proximate the bend line and increasing in width dimension as the straps extend away from both sides of the minimum width dimension, and the straps being positioned relative to a desired bend line and being configured to produce plastic deformation of the straps at the bend line upon bending of the sheet of material along the bend line.

173-208. (Canceled, without prejudice or disclaimer)